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ABSTRACT

Most public telecommunications entities have traditionally kept a careful watch on the Federal Communications Commission and on Congress when it comes to issues of access to broadcast spectrum, and in recent years, to satellite frequencies and digital television allocations. This paper focuses on the emerging set of policy initiatives at the state regulatory level designed to help public service entities get connected to private sector networks. State utility commissions have used a number of regulatory strategies to stimulate the deployment of advanced services. Special discounts for educational applications have been approved by many state commissions. As states move away from rate-based regulation, the promise of lessened regulation itself has been the main bargaining tool for getting promises of infrastructure investments and school connections from the regulated carriers. The approach of lessened regulation in exchange for new investments has all but been mandated by the new federal telecommunications legislation still in process. By taking away the state's power to maintain rate-based regulation, federal bills may make it harder to extract significant investment concessions. There is a growing move to limit the use of regulation to "push" telecommunications infrastructure deployment in favor of creating market-based incentives to "pull" advanced offerings into the community--to get unregulated vendors actually to want to invest in less profitable areas and once the investment is made, to ensure that customers can afford to purchase the newly available advanced services. Education, health care, library and local government institutions are the cutting edge of this new approach: advanced universal service. The ability for all Americans to access an affordable set of basic telecommunications services is at the heart of the universal service provisions of state and federal communications regulations. (AEF)

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Advanced Universal Service: State Models for Extending the Information Highway

by Steven Vedro

Introduction

Most public telecommunications entities have traditionally kept a close eye on the FCC and on Congress when it comes to issues of access to broadcast spectrum. In recent years, that concern has extended to satellite frequencies and digital (advanced) television allocations. On a state level, many public broadcasters have joined with educational institutions to lobby for, and participate in, large scale education and telemedicine video networks. This essay will not review these "big network" initiatives but will instead focus on the emerging set of policy initiatives at the state regulatory commission level designed to help public service entities get connected to private sector networks. These agencies will play a greater and greater role in defining how and at what costs schools, hospitals, libraries, public broadcasters, and other public entities can get connected to the advanced services that are at the core of the information highway.

While We Wait for the Big Network...

In a time of overall belt-tightening it is likely that many states will draw back from launching multi-million dollar distance education—costs are high and technological change makes any long-term investment somewhat risky. Iowa's state-owned and operated network, while providing video connections at very low cost to its end-users, does not cover its operating expenses (network operating losses are projected to rise to 300 percent of income by 1999), let alone its bond repayments. The Iowa legislature has recently empowered the state's Telecommunications and Technology Board to enter into negotiations to sell the network if necessary.

North Carolina's Information Highway is state-operated, but leased from a number of telephone carriers. The current system is carrying a significant amount of video distance learning traffic—about half of the state's community colleges, one-third of its high schools, and all of the higher education sites will be connected by the end of the year. Telemedicine links between rural clinics and correctional institutions and urban teaching hospitals has also started. While the the legislature has allocated $4.4 million for the first 100 sites, there is already concern being raised about when and, given the level of operating costs, if ever, the remaining targeted locations will be connected.

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In addition to the fear of cost overruns, another factor limiting the projected growth of these large dedicated broadband networks is the rapidly changing nature of video transport technology. Long-term leasing of high-bandwidth dedicated circuits makes little sense if you believe that compression will drastically lower your network capacity requirements in a few years. In addition, once the network expands to include connections to multiple dispersed sites (*e.g.*, high schools and local clinics), switched versus dedicated networks begin to look more attractive. And building the switching capacity into the publically available infrastructure looks like better public policy. This concern has led to a number of statewide initiatives to focus less on building dedicated networks, but to stimulate the deployment of advanced services by the private sector—services that can be used by all citizens.

Regulatory Strategies for Infrastructure Deployment and Affordable Access

State utility commissions have used a number of strategies to "push the infrastructure." Under traditional rate-based regulation, commissions review telephone company profitability. When profits have exceeded established rate of return limits, the excess has traditionally been returned to customers through rate reductions or has been set aside for network improvements. These over-earnings from telephone rate cases (often through the mechanism of a stipulation agreement) have funded a number of distance learning projects.

Arkansas ($231 million) and Michigan ($23 million) have used over-earnings settlements to support major network modernization commitments, including significant investments in school video links, classroom computers, and teacher training institutes.

In Georgia, a portion of Southern Bell's over-earnings ($58 million) has been supplemented by state lottery contributions to fund a Telemedicine and Distance Learning Board.

Michigan has directed $23 million from an Ameritech rate settlement to be directed to distance learning projects. The Missouri PSC (public service commission) agreed to forgo a rate review of Southwestern Bell until 1999 in exchange for a price freeze on local phone service and a commitment to support a fiberoptics network for public entities in Kansas City, fund a number of distance education networks, and develop up to five Tele-Opportunity Training and Information Centers in that state's rural areas.

Special discounts for educational applications have also been approved by a number of state commissions. As any discount based upon content violates the principle of common carriage (the same price to all customers of the same service), these discounts have usually been funded by corporate contributions, over-earnings settlements, or by special legislative action granting the commission the right to modify common carrier rules (*i.e,* not passed on to the customers in a rate-based regulatory scheme). States have authorized discounts for everything from basic telephony (a phone line in each school used to connect with Learning Link in Rhode Island), to ISDN (in California and Tennessee) and interactive video (Alabama, Delaware, Kansas, Maryland, Missouri, and Texas).

As states move away from rate-based regulation—and thus the ability to determine what are excess profits—the promise of lessened regulation itself has been the main bargaining tool for getting promises of infrastructure investments and school connections from the regulated carriers. In the last two years more than 26 states have combined some form of lightened regulation (such as a revenue-sharing plans, price caps, and/or price freezes) in exchange for telephone company agreements to deploy digital services and fiber optics networks at a pace faster than the companies might have done on their own. New Jersey Bell's "Opportunity New Jersey Plan," for example, includes a promise to bring fiber to 100 percent

Examples of States with Network Development Incentives

Special Discounts						
Classroom Video	AL	DE	KS	MD	TN	TX
Telemedicine			KS			TX
ISDN	CA			MD	TN	TX
Advanced Infrastructure Deployment Agreement	AR	GA	IN	MI	MO	WI
Advanced Services in USF (Universal Service Fund)		HI	IN*	PA*	TX	WI
Contributions to Training Pilot Projects, etc.		GA	IN	MO	TX	WI

* under study

of NJB's subscribers by the year 2010. Residential rates are capped through 1999 and company revenues over 13.7 percent on rate-regulated services are to be shared with customers (in the form of rebates) on a 50-50 basis.

In many states the Bell companies have succeeded in their campaign to move completely from rate-regulation (where their profits are monitored) to price regulation. Under this arrangement the BOC agrees to freeze (or lower) residential rates for a fixed number of years (subject to a price adjustment formula for future changes), give up certain aspects of its monopoly protection from competition, and make major investments in the state's infrastructure.

Ameritech's "Customer First Plan" is the most developed: in exchange for surrendering its local phone monopoly and agreeing to sell services to its new competitors, it has won the right in most of its territory to move to price regulation. In exchange for ending rate regulation, the company's promised Illinois investment is more than $1.2 billion in new fiber, switching upgrades, ISDN availability, and bringing digital connectivity to 340 high schools, 35 community colleges, 850 public hospitals, 50 correctional centers and 350 libraries. In Wisconsin, the company's infrastructure investment plan filed with the PSC requires it to invest $700 million by 1999; included in this figure is an agreement to "bring fiber to the doorstep" of every public and private high school, regional library, hospital, correctional facility, college and university by 1998. The company has also agreed to "contribute" $13 million to the newly created Wisconsin Advanced Telecommunications Foundation. The Opportunity Indiana Plan offers $120 million for similar connections; an additional $30 million is to be contributed to a new non-profit telecommunications technology training center.

Federal Legislation May Give Away the Carrot!

This approach—lessened regulation in exchange for new investments—has all but been mandated by the new federal telecommunications legislation still in process. The Senate version requires the states to encourage the deployment of advanced telecommunications capability to all Americans (including, in particular, elementary and secondary schools and classrooms) by utilizing price cap regulation, regulatory

forebearance, or other regulating methods that remove barriers to infrastructure investment. Unfortunately, by taking away the state's power to maintain rate-based (profit) regulation—their one major bargaining chip, the federal bills may actually make it harder to extract significant investment concessions from the telcos—either in lieu of a rate hearing or in exchange for less regulation.

On the other hand, as new technologies become available and new vendors enter the marketplace, a policy that hopes to build advanced services for the public sector solely upon (de)regulation of one industry (telco) using one technology (fiber) is probably short-sighted. Requiring discounts puts the provider at a disadvantage in terms of revenue, or if the discounts are "made up" by subsidies from ratepayers, the competitors are now underbid! In a market-based environment, advocates claim, competition is supposed to bring prices down, not regulatory intervention. However, even free-market proponents have come to accept the fact that access to advanced communications services are critical economic and community development tools—and that many schools, libraries, health centers and the like can't get such services or need some "pump priming discounts" to get started.

One result of these concerns is a growing move to limit the use of regulation to "push" telecommunications infrastructure deployment in favor of creating market-based incentives to "pull" advanced offerings into the community—to get unregulated vendors actually to want to invest in less profitable areas and once the investment is made, to ensure that customers can afford to purchase the newly available advanced services. Education, health care, library, and local government institutions are the cutting edge of this new approach: advanced universal service.

The Concept of Advanced Universal Service

The ability for all Americans to access an affordable set of basic (essential) telecommunications services is at the heart of the universal service provisions of state and federal communications regulations. In practical terms this means finding ways to subsidize getting plain old telephone service to remote high- cost areas and/or underwriting special rates for low-income customers. Traditionally, funding for these efforts has come from various contributions and taxes charged to interstate telecommunications companies (and from allowing internal subsidies from business and urban customers to offset the higher costs of rural service). As states move to less regulated and more competitive environments, they have had to rethink the old model of universal service. New funding sources are being tapped, new services are being added to the basic package, and a new class of discounted advanced universal service features are being created for social purposes.

Last year's draft telecommunications bills were fairly generous in their definitions of (1) the customers who could qualify for advanced services (public schools, libraries, hospitals, local public television stations, and "other public or non-profit community telecommunications users"), (2) the applications to be made available to those customers (leaving it to the FCC and the states to "define universal service specifically for those communities telecommunications users to which this section applies"), and (3) the rates ("not higher than incremental cost") for these services to be underwritten by state fees on carrier revenues. The current legislation is much more restrictive. Companies are urged to provide universal service to rural health clinics at rates comparable to urban locations, while discounts are allowed for public schools and libraries. States are allowed to add to these customer classes and service categories so long as "such regulations do not conflict with the Commission's rules" and are linked to "specific and predictable mechanisms to support such definitions or standards."

Yet, even within these confines, a number of states have established universal service

mechanisms that encourage access to advanced services. Wisconsin's "Information Highway Act" (1993 Act 496, enacted in July of 1994) established a Universal Service Fund Council to advise the public service commission as to basic service elements as well as "a set of advanced service capabilities" that should be available at affordable prices throughout the state. Funded by a tax on the intrastate revenues of the state's communications companies, the new universal service fund (USF) could be tapped to underwrite the costs of bringing advanced services to "education, library and health care information services." The Council has recommended that a portion of USF funds be used to pay for vouchers allowing public and private schools, libraries, and non-profit hospitals to order discounted interactive video and/or high speed internet connections from any network company that is a contributor to the USF.

Texas' new Public Utility Regulatory Act establishes a new Infrastructure Development Fund to support grants and loans to schools, hospitals and other public institutions. Funds can be used for equipment, services and inside wiring. The fund is to be capitalized at $1.5 billion over a ten-year period.

A similar expansion of universal service definitions is taking place in Hawaii, where their new telecommunications law sets a goal of access to advanced services providing "a combination of voice, data, image, and video" for all consumers at reasonable rates. One notable provision will extend the universal service program to promote "enhanced government information and services, including education, health care, public safety, and other government services." Another provision dedicates universal service funds to "provide service drops and basic service at discounted rates to public institutions." Similar studies are under way in Pennsylvania and Texas.

Conclusion

These approaches, while still focusing on terrestrial carriers (DirectTv has already announced a DirecData DBS Internet service and a number of interexchange companies are talking about providing satellite-based Internet connections) do meet the test of the federal legislation. They also encourage a more market-based approach to funding advanced service connections. Cable, cellular and even satellite providers could be eligible for USF vouchers, should they agree to contribute to the state's USF program.

Educators, and public broadcasters, health care networks, and others could also benefit from these programs. However, this means that in addition to participating in planning teams for various "big network" initiatives, they will also have to focus on less grand schemes—such as ensuring that their legislatures and utility commissions include distance education, community information networks and public broadcast narrowcast services as critical elements of any state's infrastructure deployment plan and/or advanced package of universal services.

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